

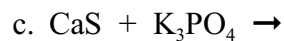
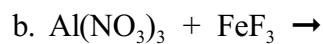
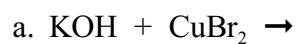
**Unit 6 – Investigating chemical reactions (Ch. 9)****Chapter 9.3 – Types of Chemical Reactions**

1. List the six main types of chemical reactions.
2. Describe a synthesis reaction. Be sure to include an example in your description.
3. When a synthesis reaction occurs between a metal and a non-metal, \_\_\_\_\_ compounds are formed. When a \_\_\_\_\_ occurs between two non-metals, \_\_\_\_\_ compounds are formed.
4. Complete and balance the following synthesis reactions in the spaces below.
  - a.  $\text{Na} + \text{N}_2 \rightarrow$
  - b.  $\text{K} + \text{O}_2 \rightarrow$
  - c.  $\text{N}_2 + \text{O}_2 \rightarrow$
5. A decomposition reaction is the \_\_\_\_\_ of a synthesis reaction.

6. Describe a decomposition reaction. Be sure to include an example in your description.
7. Complete and balance the following decomposition reactions in the spaces below:
- a.  $\text{AuBr}_3 \rightarrow$
- b.  $\text{CaF}_2 \rightarrow$
- c.  $\text{N}_2\text{O} \rightarrow$
8. Describe a single replacement reaction. Be sure to include an example in your description.
9. Complete and balance the following single replacement reactions in the spaces below:
- a.  $\text{Cl}_2 + \text{CuBr}_2 \rightarrow$
- b.  $\text{Al}(\text{NO}_3)_3 + \text{Mg} \rightarrow$
- c.  $\text{PbF}_4 + \text{Na} \rightarrow$
10. Describe a double replacement reaction. Be sure to include an example in your description.

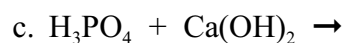
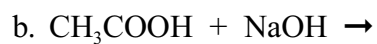
$(\text{OH})_3$

11. Complete and balance the following double replacement reactions in the spaces below:



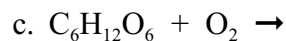
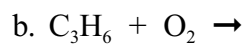
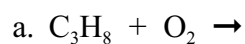
12. Describe a neutralization reaction. Be sure to include an example in your description.

13. Complete and balance the following neutralization reactions in the spaces below:

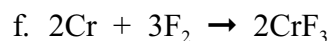
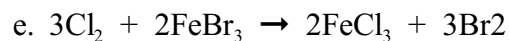
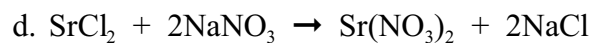
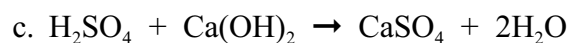
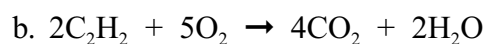
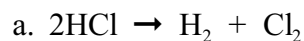


14. Describe a combustion reaction. Be sure to include an example in your description.

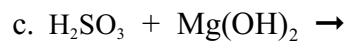
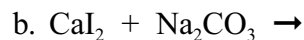
15. Complete and balance the following combustion reactions in the spaces below:

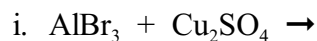
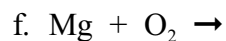
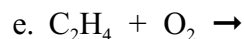


16. Classify each of the following reactions as synthesis, decomposition, single replacement, double replacement, neutralization or combustion.



17. Complete the following reactions and classify them as synthesis, decomposition, single replacement, double replacement, neutralization or combustion.





### **Chapter 9.4 – Rates of Chemical Reactions**

1. The \_\_\_\_\_ describes how quickly or slowly reactants turn into products.
2. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ are the four main factors that affect reaction rates.
3. Describe the kinetic molecular theory and the collision theory.
4. Concentration refers to how much \_\_\_\_\_ is dissolved in a solution.
5. The greater the concentration, the greater the chance that \_\_\_\_\_ among particles will occur.
6. \_\_\_\_\_ is the measure of how much area of an object is exposed.
7. \_\_\_\_\_ the surface area results in more collisions among particles.

8. Increasing the temperature of a reaction causes the \_\_\_\_\_ of the reactants to move more \_\_\_\_\_, which leads to more \_\_\_\_\_ and more energy.
9. A \_\_\_\_\_ is a substance that speeds up the rate of a chemical reaction without being used up in the reaction itself.
10. Catalysts make it possible for reactions to occur with less \_\_\_\_\_ than reactions would otherwise need without the catalyst present.

### ***Vocabulary to Know***

Write a concise definition of each of these terms found in this chapter.

**Catalyst –**

**Chemical reaction –**

**Collision Theory –**

**Combustion reaction –**

**Decomposition reaction –**

**Double replacement reaction –**

**Kinetic Molecule Theory –**

**Neutralization reaction –**

**Reaction rate –**

**Single replacement reaction –**

**Synthesis reaction –**